

RESIDENTIAL FIRE INJURY

Fires and burns are the fifth leading cause of unintentional injury-related death among children ages 14 and under. Children, especially those ages 5 and under, are at the greatest risk from home fire-related death and injury, with a fire death rate more than twice the national average. A less acute perception of danger, less control over their environment, and a limited ability to react promptly and properly to a fire contribute to this excess risk.

In 2002, U.S. fire departments responded to nearly 401,000 residential fires or one every 79 seconds. These fires accounted for 24 percent of all reported fire incidents, yet caused 80 percent of all fire-related deaths and 76 percent of all fire-related injuries. Smoke alarms are extremely effective at preventing fire-related death and injury. The chances of dying in a residential fire are cut in half when a smoke alarm is present. Residential sprinkler systems, escape plans and fire extinguishers are also effective at preventing fires and mitigating this risk.

FIRE DEATHS AND INJURIES

- In 2001, 493 children ages 14 and under died in residential fires. Nearly 54 percent of these children were ages 4 and under.
- Each year, nearly 40,000 children ages 14 and under are injured by fires in the home.
- More than 70 percent of all fire-related deaths are from smoke inhalation, caused by toxic gases produced as fires develop and spread. Burns are responsible for an additional 25 percent of fire-related deaths.
- Smoke inhalation alone accounts for more than half of all fire-related injuries to children ages 9 and under.

WHEN AND WHERE FIRE DEATHS AND INJURIES OCCUR

- A working smoke alarm is not present in two-thirds of the residential fires in which a child is injured or killed.
- Almost 55 percent of children ages 5 and under who die from home fires are asleep at the time, while nearly one-third of these children are too young to react appropriately.
- Home cooking equipment is the leading cause of residential fires and fire-related injuries. However, residential fires caused by smoking materials (e.g., cigarettes) are the leading cause of fire-related death and the third leading cause of fire-related injury.
- Children playing with fire account for 5 percent of residential fires, yet cause 40 percent of residential fire-related deaths among children. More than half of all child-play home fires begin in a bedroom, often while children have been left alone to play. Roughly three out of five of these fires are started by children playing with matches or lighters.
- Home fires and home fire-related deaths are more likely to occur during cold-weather months, December through March.
- The number of candle-related fire deaths, most caused by candles left unattended or inadequately controlled increased 20 percent between 1998 and 1999, hitting a 20-year peak. A child playing with or near a candle is one of the leading contributors to candle-related fires.
- The South has the highest fire-related death rate in the country, 21 percent higher than the national rate.

WHO IS AT RISK

- Children in homes without smoke alarms are at greater risk of fires and fire-related death and injury.
- Children ages 5 and under, who represent 9 percent of the population but more than 17 percent of all fire-related deaths in the home, are more than twice as likely to die in a fire as the rest of the population.

- Male children have a higher rate of fire-related death and injury than female children.
- Studies indicate that by age 12, half of all children have played with fire. Males are nearly twice as likely as females to have played with fire.
- Children from low-income families are at greater risk for fire-related death and injury, due to factors such as a lack of working smoke alarms, substandard housing, use of alternative heating sources and economic constraints on providing adequate adult supervision.
- Children living in rural areas have a dramatically higher risk of dying in a residential fire. Death rates in rural communities are more than twice the rates in large cities and more than three times higher than rates in large towns and small cities.
- Black children are more than twice as likely as white children to die in a fire.
- More than 43 percent of residential fire-related deaths among children ages 9 and under occur when the child is attempting to escape, unable to act or acting irrationally. Although an escape plan may help to reduce these deaths, only 25 percent of households have developed and practiced a plan.
- People with a physical or cognitive disability are more than twice as likely to die in a house fire. Limited mobility may interfere with a child's ability to escape, and cognitive impairments may interfere with a child's awareness of imminent danger.

SMOKE ALARM AND SPRINKLER SYSTEM EFFECTIVENESS

- As of 1997, 94 percent of homes in the United States had at least one smoke alarm. However, only three-quarters of all homes had at least one *working* smoke alarm. Nearly 40 percent of all home fires and more than half of all fire-related deaths in the home occur in the 6 percent of U.S. homes that have no smoke alarms.
- The chances of dying in a residential fire are cut by an estimated 73 percent when automatic sprinkler systems are present. Yet, mainly due to their expense, sprinkler usage in homes is extremely low. However, the cost of sprinkler systems and their installation is being greatly reduced due to industry innovation.
- Smoke alarms and sprinkler systems combined could reduce fire-related deaths by 82 percent and injuries by 46 percent.

FIRE SAFETY LAWS AND REGULATIONS

- Many states and the District of Columbia have laws that require smoke alarms to be used in both new and existing dwellings. A few states still have no comprehensive smoke alarm laws. Other states have a variety of laws covering specific situations, such as new dwellings or multi-occupancy dwellings only.
- Many localities currently have ordinances mandating automatic sprinkler systems in new residential homes.
- In 1994, the U.S. Consumer Product Safety Commission issued a mandatory safety standard requiring disposable and novelty cigarette lighters to be child-resistant. Since this standard has been in effect, the number of child-play lighter fires has declined 58 percent and the number of deaths and injuries associated with these fires has declined by 31 percent and 26 percent, respectively.

HEALTH CARE COSTS AND SAVINGS

- The total annual cost of fire- and burn-related deaths and injuries among children ages 14 and under is more than \$11.9 billion. Children ages 4 and under account for more than \$4.1 billion of these costs.
- Every dollar spent on a smoke alarm can save \$69 in fire-related costs.

PREVENTION TIPS

- Keep matches, gasoline, lighters and all other flammable materials locked away and out of children's reach. Never leave a burning candle unattended. Place candles in a safe location away from combustible materials and where children or pets cannot tip them over.
- Install smoke alarms in your home on every level and in every sleeping area. Test them once a month, replace the batteries at least once a year (unless the batteries are designed for longer life) and replace the alarms every 10 years. Ten-year lithium alarms are also available and do not require an annual battery change. For the best protection against different types of fires, consider installing both ionization alarms (better at sensing flaming fires) and photoelectric alarms (better at sensing slow, smoky fires).
- Plan and practice several fire escape routes from each room of the home, and identify a safe outside meeting place. Practicing an escape plan may help children, who can become frightened and confused, to escape to safety in a fire.